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REMARKS

2. In the section headed Response to Arguments, the Examiner has not identified the statutory basis for rejecting claims 1-3 and 8-14. In a single sentence claims 4-7 and 15 are said to have been rejected in previous Office Action and the rejection still stands in this Office Action. The previous Office Action rejected claims 4-7 as anticipated by Ikeguchi under 35 U.S.C. § 102(b) and claim 15 as unpatentable over Ikeguchi as a primary reference as said to be applied to claim 11 and further in view of Koyama as a secondary reference.

The present invention is concerned with keeping the local oscillator frequency in the reception band regardless of which channel or frequency is then being received. Consider the following example of a radio frequency band of 2440-2485 MHz that is an example of the predetermined range of reception frequencies. Within that band, there may be a multiplicity of channels, in this specific example 45 channels, each one MHz wide. The invention disclosed and claimed in this invention keeps the local oscillator signal frequency in the band for all channels. While prior art may have the local oscillator frequency in the band for some channels, nothing in the prior art remotely discloses having the local oscillator frequency be in the band for all the channels. The invention achieves this unusual unobvious result by having signals received in the channels in the bottom half of the band converted to intermediate frequency by heterodyning with a high-side local oscillator tuned to a frequency in the high end of the band and converting signals received in channels in the top half of the band to intermediate frequency by heterodyning with a low-side local oscillator tuned to a frequency in the low portion of the band. In this example, the band has a midpoint around 2462 MHz. In accordance with the invention to receive a particular channel in the band, a decision is made as to whether the channel is above or below the threshold frequency, in this example about 2462 MHz. To this end, the invention involves comparing the frequency of the channel desired to be received with the threshold frequency, here 2462 MHz in this example, and then establish the local oscillator frequency above or below this threshold frequency, but still within the band.

Manifestly, Ikeguchi and no other prior art discloses or suggests this arrangement of being able to select a channel in any portion of the band for conversion to an intermediate

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frequency through heterodyning with a local oscillator signal that is always tuned to a frequency within the band that embraces all the channels of that band.

In responding to the reasoning we advanced in support of the patentability of the invention defined by the claims, the Examiner said that regarding claim 1, frequency comparator 22 of the reference in the correcting circuit 18 compares the frequency of received intermediate frequency IF signal with the frequency of a reference oscillation frequency signal generated by a reference oscillator 20. That does not correspond to receiving an electromagnetic signal having a frequency within a predetermined range of reception frequencies. The Examiner states that the reference oscillation frequencies correspond to a plurality of digital data representations of the channels to be preset in the preset circuit 7 and states that the above teaching addresses the claimed limitation "comparing the frequency of ...". The Examiner states that each preset channel would inherently have a small frequency range wherein center frequency of that range represents a desired broadcast station. Referring back to the correcting circuit 18, it is said if the received IF frequency is different from the reference frequency, an error signal is produced from the frequency comparator 22 and is applied to the digital-analog (DAC) converting circuit. The analog converted signal from the converting circuit 11 is said to be corrected and is applied to the voltage controlled oscillator 6 to tune the received IF frequency within the range of reception frequencies. The teaching portion is said to clearly address the step of tuning the oscillator of the receiver as stated in said claim.

If the Examiner were repeating the rejection in the previous office action, we respectfully requested the Examiner to quote verbatim the language in the reference regarded as corresponding to each element in the rejected claims. The Examiner did not and can not comply with this request. The Examiner quotes ten words in claim 1 in this response. The Examiner has not and can not identify any language in the reference corresponding to "receiving an electromagnetic signal having a frequency within a predetermined range of reception frequencies." The Examiner has not and can not quote any language in the reference corresponding to "comparing the frequency of the desired received signal to a threshold frequency." The Examiner has not and can not quote any language in the reference corresponding to "tuning the oscillator of the receiver to a frequency within the range of reception frequencies based on the threshold frequency, that is less and more than the received

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frequency when the received frequency is above and below the threshold frequency, respectively."

Regarding claim 2, the Examiner repeats the comments regarding claim 1 and concludes with a single sentence stating that the received signal frequency is indirectly being indexed by tuning to the range of reception frequencies of a desired channel. The Examiner has not and can not quote language in the reference corresponding to converting the desired received signal frequency to an index value of a set of index values, the set of index values corresponding to a set of channels in the predetermined range of reception frequencies as called for by claim 1.

Regarding claim 3, the Examiner relies on the comments regarding claim 1 and concludes in the last sentence stating that the preset channels are indexed to distinguish from one channel to the others is said to be known in the art and that therefore the reference oscillation frequencies are inherently indexed to different values. The Examiner has not and can not quote any language in the reference corresponding to representing the threshold frequency as an index value of a set of index values, the set of indexed values uniquely corresponding to a set of channels in the predetermined range of reception frequencies.

Regarding claim 8, it is said that claim 1 recites the steps of comparing the frequency and tuning the oscillator of the receiver of the claim. It is said to be well known in the art that each channel comprises a small range of frequencies wherein the center frequency is equal to $F_{low} + (F_{high} - F_{low})/2$ respectively and that since the reference oscillation frequency is said to correspond to the digital data representation of the channel to be preset and the preset circuit 7, the reference oscillation frequency is said to inherently approximate to $F_{low} + (F_{high} - F_{low})/2$. The Examiner has not and can not identify any language in the reference disclosing that the range of frequencies is bounded by high and low frequencies F_{high} and F_{low} , respectively, with the nonexistent threshold frequency approximately equaling $F_{low} + (F_{high} - F_{low})/2$.

Regarding claim 9, after again relying on the characterization of claim 1, it is said that the range of frequencies stated in the claim can be easily preset in the preset circuit 7 and that the mere selection of frequency range that is not an inventive feature could not be patentable since the preset tuner could be tuned to any range of frequencies at design. The Examiner has not identified any language in the reference which corresponds to claim 9 and the specific range of frequencies of 2400 MHz to 2485 MHz.

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Apparently intending to respond regarding claim 10, the Examiner states that in FIG. 1 a receiver includes a VCO 6, a preset tuner 7 that stores digital data representations representative of the local oscillation frequencies corresponding to the channels to be preset, a voltage correcting circuit for providing a frequency control signal to the VCO 6 through the DAC 11, but has not and can not quote language in the reference corresponding to a frequency controller coupled to the local oscillator and the source of a signal representative of the frequency of a desired signal to be received within the predetermined frequency range for providing a frequency control signal to the local oscillator that always sets the frequency of the local oscillator to a frequency that differs from the frequency of the desired signal by the intermediate frequency and is within said predetermined frequency range.

Regarding claim 11, the rejection argument is said to be similar to that in claim 10, and the receiver in FIG. 1 is said to include a receiving antenna 1 and a mixer 3 for converting received high frequency signal into an IF signal. The Examiner has not and can not quote language in the reference corresponding to a frequency controller coupled to said local oscillator and said source for providing a frequency control signal to said local oscillator that always sets the frequency of said local oscillator to a frequency that differs from that of a received signal within said predetermined frequency range by said intermediate frequency and is within said predetermined frequency range.

Regarding claim 12, the rejection argument it is said still stands and has been stated in previous office action in combination of the primary reference and Satow since both are said to teach a similar method of tuning a local VCO of a receiver to a frequency within the range of reception frequencies. As stated before and repeated again, it is said utilizing a PLL to lock onto a desired frequency is notoriously known in the art, and it is said it would have been obviously strong to modify the primary reference to include a PLL as said to be taught by the secondary reference. A basic fallacy in this reasoning is the failure to recognize that the claim requires that the local oscillator frequency remains within the range of reception frequencies, and no reference discloses or suggests this limitation.

Regarding claim 13, the rejection argument is said to be similar to claim 11, and furthermore, it is said the claimed frequency range can be preset in the preset circuit 7 at design choice. The Examiner has not and can not quote language in the reference corresponding to a

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frequency controller coupled to said local oscillator and said source for providing a frequency control signal to said local oscillator that always sets the frequency of said local oscillator to a frequency that differs from that of a received signal within said predetermined frequency range by said intermediate frequency and is within said predetermined frequency range.

Regarding claim 14, it is said that since this claim used to depend on claim 11 and has been rewritten in independent form, the rejection argument of said claim is said to be similar to claim 11, furthermore, the claimed limitation "the frequency controller further comprises a microprocessor" is said to have been rejected in previous office action using a combination of the primary reference and Koyama teachings. The Examiner has not and can not quote language in the references corresponding to the limitations of this claim or suggesting combining the references to meet the terms of this claim. In particular, nothing in the prior art discloses or suggests that the frequency controller always tunes the oscillator to a frequency within the range of received frequencies.

Regarding dependent claims 4-7 and 15, the claims are said to have been rejected in previous office action and the rejection it is said still stands in this office action.

Claims 4-7 depend upon and include all the limitations of claim 1 and claim 15 depends upon and includes all the limitations of claim 14, and the reasoning in support of the patentability of claims 1 and 14 is submitted to support the patentability of claims 4-7 and 15 so that further discussion of these claims is submitted to be unnecessary.

In view of the authorities set forth in prior responses and above, the reasoning set forth above and in prior responses and the inability of the prior art, alone or in combination, to anticipate, suggest or make obvious the subject matter as a whole of the invention disclosed and claimed in this application, all the claims are submitted to be in a condition for allowance, and notice thereof is respectfully requested. Should the Examiner believe the application is not in a condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at (617) 521-7014 to discuss what additional steps the Examiner believes are necessary to place the application in a condition for allowance.